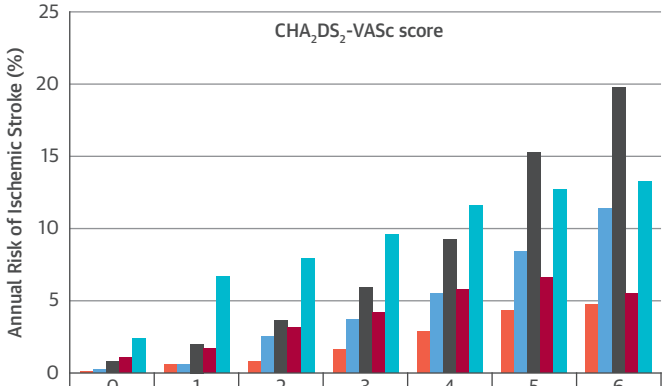
FIGURE 1 The Annual Stroke Risk Stratified With CHA_2DS_2-VASc Scores



	0	1	2	3	4	5	6
America	0.04	0.55	0.83	1.66	2.80	4.31	4.77
Sweden	0.20	0.60	2.50	3.70	5.50	8.40	11.40
Denmark	0.78	2.01	3.71	5.92	9.27	15.26	19.74
Taiwan	1.06	1.72	3.17	4.17	5.80	6.60	5.52
Hong Kong	2.41	6.64	7.84	9.56	11.58	12.69	13.18

The annual stroke risk is stratified with CHA_2DS_2-VASc scores from different epidemiological series: United States (4), Sweden (2), Denmark (3), Taiwan (1), and Hong Kong (5).

transient ischemic strokes in Chinese. A similar observation has been made in other Asian countries. Unfortunately, little is reported about the subtypes of stroke in most registries or even in randomized controlled trials. Notwithstanding, the burning question remains whether clinicians should initiate long-term anticoagulation therapy in Chinese patients with AF and a CHA_2DS_2-VASc score of 0. It is very tempting to do so, given the excellent safety profile of NOACs that has resulted in a lowering of the threshold for initiating NOAC treatment to an annual stroke risk of 1%/year. Nonetheless, it lacks support from randomized placebo-controlled trials, the gold standard to demonstrate treatment effects, specifically targeted at this presumably "low-risk" population. Further research is vital to determine the risk of cardioembolic stroke as well as other subtypes of stroke amongst Chinese patients with AF and to develop new stroke risk models that accurately stratify such risks.

***Chung-Wah Siu, MD**

*Cardiology Division
Department of Medicine
The University of Hong Kong
Hong Kong, SAR
China
E-mail: cwdsiu@hku.hk

http://dx.doi.org/10.1016/j.jacc.2014.12.067

REFERENCES

1. Chao TF, Liu CJ, Wang KL, et al. Using the CHA2DS2-VASc score for refining stroke risk stratification in 'low-risk' Asian patients with atrial fibrillation. J Am Coll Cardiol 2014;64:1658–65.

2. Friberg L, Rosenqvist M, Lip GY. Evaluation of risk stratification schemes for ischaemic stroke and bleeding in 182 678 patients with atrial fibrillation: the Swedish Atrial Fibrillation cohort study. Eur Heart J 2012;33:1500–10.

3. Olesen JB, Lip GY, Hansen ML, et al. Validation of risk stratification schemes for predicting stroke and thromboembolism in patients with atrial fibrillation: nationwide cohort study. BMJ 2011;342:d124.

4. Singer DE, Chang Y, Borowsky LH, et al. A new risk scheme to predict ischemic stroke and other thromboembolism in atrial fibrillation: the ATRIA study stroke risk score. J Am Heart Assoc 2013;2:e000250.

5. Siu CW, Lip GY, Lam KF, Tse HF. Risk of stroke and intracranial hemorrhage in 9727 Chinese with atrial fibrillation in Hong Kong. Heart Rhythm 2014;11:1401–8.

REPLY: One More "C" for CHA_2DS_2-VASc Score

We thank Dr. Siu for his comments regarding our recently published paper (1) about the usefulness of the CHA_2DS_2-VASc score for refining stroke risk stratification among patients with atrial fibrillation (AF) having an ATRIA (Anticoagulation and Risk Factors in Atrial Fibrillation) score of 0 to 5. We agree that the risk of ischemic stroke for Chinese AF patients with a CHA_2DS_2-VASc score of 0 is higher than that of Caucasians. However, it does not mean that non-vitamin K antagonist oral anticoagulants (NOACs) should be routinely prescribed for these

JACC VOL. 65, NO. 15, 2015
APRIL 21, 2015:1595–604

patients. Our previous study demonstrated that the risk of ischemic stroke for AF and non-AF patients with a CHA_2DS_2-VASc score of 0 was similar (2). Therefore, the better way to reduce stroke risk among these patients is to try to identify "novel" risk factors that were not included in the CHA_2DS_2-VASc scheme for these "low-risk" patients. For example, hyperuricemia, defined as having at least 1 episode of gout attack necessitating long-term treatment with uric acid–lowering agents, was shown to be an important risk factor of ischemic stroke for AF patients in Taiwan (3). Interestingly, hyperuricemia was associated with a higher risk of ischemic stroke even among patients with a CHA_2DS_2-VASc score of 0, suggesting that it may refine stroke risk stratification in this "low-risk" population.

It should also be noted that the occurrence of ischemic stroke in AF was not all caused by cardiac thromboembolism, and atherosclerosis or thrombosis of the cerebral artery is another possible reason. In the Taiwan Stroke Registry studying 22,642 patients with acute ischemic stroke, history of AF was noted in 16.5% of patients (4). However, there was only 10.9% of these patients whose type of stroke was classified as "cardioembolism" by diagnostic criteria (5). It may suggest that around one-third of stroke in AF patients may not result from cardiac thromboembolism. Therefore, whether the use of oral anticoagulants can provide benefits exceeding the risk of major bleeding for AF patients with a CHA_2DS_2-VASc of 0 remains very uncertain. We welcome continued efforts and discussions on this issue to improve the quality of care for AF patients regarding stroke risk reduction.

Tze-Fan Chao, MD
Chia-Jen Liu, MD
***Shih-Ann Chen, MD**
*Division of Cardiology
Department of Medicine
Taipei Veterans General Hospital
No. 201, Sec. 2, Shih-Pai Road
Taipei 112
Taiwan
E-mail: epsachen@ms41.hinet.net

http://dx.doi.org/10.1016/j.jacc.2014.12.065

REFERENCES

1. Chao TF, Liu CJ, Wang KL, et al. Using the CHA2DS2-VASc score for refining stroke risk stratification in 'low-risk' Asian patients with atrial fibrillation. J Am Coll Cardiol 2014;64:1658–65.

2. Chao TF, Liu CJ, Chen SJ, et al. Atrial fibrillation and the risk of ischemic stroke: does it still matter in patients with a CHA2DS2-VASc score of 0 or 1? Stroke 2012;43:2551–5.

3. Chao TF, Liu CJ, Chen SJ, et al. Hyperuricemia and the risk of ischemic stroke in patients with atrial fibrillation–could it refine clinical risk stratification in AF? Int J Cardiol 2014;170:344–9.

4. Hsieh FI, Lien LM, Chen ST, et al. Get With the Guidelines-Stroke performance indicators: surveillance of stroke care in the Taiwan Stroke Registry: Get With the Guidelines-Stroke in Taiwan. Circulation 2010;122:1116–23.

5. Adams HP Jr., Bendixen BH, Kappelle LJ, et al. Classification of subtype of acute ischemic stroke. Definitions for use in a multicenter clinical trial. TOAST. Trial of Org 10172 in Acute Stroke Treatment. Stroke 1993;24:35–41.